Detailed Syllabus for the post of Assistant Professor in Respiratory Medicine in Medical Education

Category No.688/2025

Total - 100 marks

Module	Theme	Marks Proportion
1.	Basic Science concepts	10%
2.	Airway diseases	10%
3.	Thoracic Malignancies	10%
4.	Respiratory Infections	10%
5.	Tuberculosis and NTM infection	15%
6.	ILD, Pulmonary Vascular diseases & Orphan lung disease	10%
7.	Occupational, Iatrogenic, Allergic, Genetic and Developmental Disorders, Environmental Diseases	10%
8.	Intensive care	5%
9.	Pleura, diaphragm, chest wall and respiratory muscle diseases	5%
10.	Investigations & Interventions in Respiratory diseases, Symptoms and Signs, Miscellaneous including Sleep.	15%
	Total Marks	***100%***

Module 1 – Basic Science concepts

- Anatomy - Structure of lungs, pleura and mediastinum, diaphragm, blood supply, lymphatics and lymph nodes, thoracic duct, Development (embryology) & aging of respiratory system
- Respiratory Physiology, Control of ventilation;pulmonary blood flow, gas exchange and transport,Basic interpretation of Acid-base and electrolyte balance. Microbiology- common bacterial, viral, fungal,parasites
- Pharmacology of commonly used drugs for respiratory diseases
- Pathology of common lung diseases including TB,Airway diseases, lung cancer, ILD and its pathophysiology.
- Basic knowledge on research methodology and epidemiology including study designs.

Module 2 – Airway diseases

- Asthma – including inhaler therapy, biologicals ,difficult asthma, latest GINA guidelines
- Chronic bronchitis/ COPD-latest GOLD guidelines, Pulmonary rehabilitation
- Small airway diseases
    - Bronchiectasis and its management
    - Upper airway diseases and Asthma mimickers

Module 3- Thoracic malignancies

- Lung cancer – including classification, diagnosis, TNM staging(knowledge on staging principles), general treatment principles including chemo, radiation, surgery, targeted therapy, immunotherapy, Solitary Pulmonary Nodule assesment, Basic knowledge on paraneoplastic syndromes,Lung Cancer screening.
    - Pleural tumours, Malignant pleural effusion and its management.
- Mesothelioma, Metastatic tumours, Mediastinal masses.

Module 4 - Respiratory Infections

- Upper and Lower Respiratory tract Infections
- Community acquired pneumonia & Nosocomial Pneumonias
- Anaerobic Lung infections including Lung abscess
- Pleural infections
- Viral,Fungal,Parasitic infections
- Basic interpretation of Pneumonias in the immunocompromised host

Module 5– Tuberculosis & NTM

- Pulmonary TB and Extrapulmonary TB
- Latent TB infections
- Common Non tuberculous mycobacterial diseases
- Drug resistant Tuberculosis
- National Tuberculosis Elimination programme and the concluded programmes RNTCP,Nuances on END TB strategy.
- HIV infections and TB in detail
- Laboratory diagnosis of TB including staining, culture ,Phenotypic and genotypic drug sensitivity testing
- Anti TB drugs – first and second line, new drugs and regimens,BCG vaccine, new vaccines, new diagnostic tests in TB

Module 6 – ILD, Pulmonary Vascular diseases & orphan lung disease

- Knowledge of all Idiopathic Interstitial Pneumonias, Sarcoidosis ,Connective tissue related ILD.
- Pulmonary Embolism, Fat embolism
- Pulmonary edema
- Pulmonary Hypertension including Chronic thromboembolic Pulmonary Hypertension and Cor Pulmonale
- Knowledge of Rare ILD(Langerhans cell histiocytosis, Lymphangioleiomyomatosis, Pulmonary alveolar proteinosis) and vasculitis manifesting as Lung diseases.

Module 7 – Occupational, Iatrogenic, Allergic, Genetic and Developmental Disorders, Environmental Diseases

- Occupational Asthma versus Reactive airway dysfunction syndrome

- Allergic rhinitis, anaphylaxis, Urticaria, atopic dermatitis, eczema, food allergy, drug allergy, Allergen Immunotherapy and Allergic Bronchopulmonary aspergillosis,Approach to Eosinophilic lung diseases and Eosinophilic granulomatosis with polyangitis.

- Coal worker's Pneumoconiosis, Asbestos related Disease, Silicosis, Berrylliosis, Byssinosis, Bagassosis, Hypersensitivity pneumonitis, Dust and Toxic gas inhalation disease, Indoor pollution related diseases, - Outdoor pollution related disease, Smoking related disease & smoking cessation.

- High altitude physiology & Disease, Diving related disease, Aviation and sports related pulmonary disorders, Disability evaluation and compensation,
- Traumatic thoracic injury

- Cystic Fibrosis. Primary Ciliary Dyskinesia, Alpha-1 antitrypsin deficiency, Agenesis, Aplasia and Hypoplasia, Sequestration, congenital lobar emphysema, bronchogenic cysts
- Aerospace medicine,Climate change, Global warming and lungs

Module 8 – Intensive care

- Respiratory Failure-Acute Lung Injury and Acute Respiratory Distress Syndrome
- Type II, III & IV respiratory Failure.
- Mechanical ventilation – Invasive & NIV, VILI, Weaning, PEEP, prone ventilation,
- Oxygen therapy & Oxygen toxicity, HFNC, LTOT,
- Basic principles of ECMO and ECCO2 ,
- Cardiopulmonary resuscitation, Sepsis and MODS
- Respiratory and hemodynamic monitoring in acute respiratory failure

Module 9 - Pleural, diaphragm, chest wall and respiratory muscle disorders

- Pleural Effusion Light criteria,pathology and Management of parapneumonic effusions, empyema , Pneumothorax, Haemothorax Chylothorax and Fibrothorax,

- Knowledge on Chest wall deformities, Approach to Lung manifestations in Neuromuscular disorders, Diaphragmatic hernia, eventration and palsies.

- Preoperative respiratory evaluation and post operative care and lung complications

Module 10- Investigations & Interventions in Respiratory diseases, - Symptoms and Signs, Miscellaneous including Sleep

- Dyspnoea, Wheeze, Stridor, Hoarseness, Cough, Sputum production, Chest Pain, Haemptysis, Snoring, Excessive Day time somnolence.
- Cyanosis, abnormal breathing patterns, finger, edema, clubbing,
- Pulmonary Function Testing -Static and Dynamic Lung Volumes-Interpretation and Performance of Spirometry, Body plethysmography, DLCO, Impulse oscillometry, FENO
- A basic knowledge on Cardiopulmonary Exercise testing
- Blood test and serology relevant to Respiratory medicine
- Knowledge of Tuberculin skin testing, IGRA and CyTB Thoracic ultrasound Imaging principles
- Basic bronchoscopy procedures including control of hemoptysis .Basic knowledge on EBUS and staging
- Thoracentesis and Intercostal tube drainage Pleurodesis ,Closed needle pleural biopsy
- Medical thoracoscopy, VATS, mediastinoscopy
- Basic information on various modalities in interventional pulmonology
- Sleep related disorders including Polysomnography, Obstructive sleep apnoea, Central sleep apnoea, Upper airway Resistance syndrome, CPAP therapy
- Obesity hypoventilation syndrome
- Palliative care & end of life care

- Gene therapy and Principles of stem cell therapy
- Vaccination and infection control
- Respiratory Diseases and Pregnancy induced respiratory diseases
- Drug induced Lung diseases
- Lungs in systemic illnesses

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.